Extending Broydens method to interaction problems

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The solution of problems involving the interaction of different systems is a domain of ongoing research although often a good solver exists for each system separately. In this paper we draw our ideas from one of the best known all-round quasi-Newton methods: Broydens rank-one update, which we extend to algorithms using 2 approximate Jacobians. A comparison is made with the iterative substructuring method and Aitkens acceleration method.